ABSTRACT

A STUDY OF METACARPOCORTICAL INDEX IN CHRONIC RENAL FAILURE

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Introduction:-

Chronic renal failure is a pathophysiological process with multiple etiologies resulting in the inexorable attrition of nephron number and function and frequently leading to end stage renal disease.Bone disease is observed in 75-100% of patients with chronic renal failure as the glomerular filtration rate

falls below 60 ml/minute.When renal bone disease is assessed using a combination of biochemical markers, histology and bone densitometry, early intervention and the careful use of an increasing number of effective therapies can reduce the morbidity associated with this common problem. One of the earliest radiological changes in chronic renal failure is metacarpocortical index (MCI). It is sum of medial +lateral cortical thickness of second metacarpal bone at mid point divided by total thickness of second metacarpal bone.

AIMS AND OBJECTIVES:-

1) Early detection of renal osteodystrophy.
2) Calculate metacarpocortical index (MCI) and predict quantitative bone changes in Chronic renal failure (CRF) patients.
3) Comparison between metacarpocortical index in CRF with biochemical parameters like blood urea, serum creatinine, serum calcium, serum phosphorus, serum alkaline phosphatase, serum uric acid, serum vitamin D3 and survey of axial skeletal region.

MAREIALS & METHODS:-

This study was conducted among 30 patients of chronic renal failure admitted in Department of General Medicine and Nephrology in Government Rajaji Hospital, Madurai and 30

normal persons were taken as control. It is a hospital based cross sectional observational study.

METHODOLOGY:-

This study was done by taking simple X- ray of right hand anteroposterior view to detect metacarpocortical index by measuring medial plus lateral cortical thickness inthe mid shaft of the second metacarpal bone divided by the total thickness of the mid shaft of second metacarpal bone. Metacarpocortical index (MCI) was correlated with simplebiochemical parameters like serum levels of creatinine, urea, calcium, phosphorus, alkaline phosphatase, uric acid, vitamin D3 levels and survey of axial skeletal region.

RESULTS:-

Total 30 patients diagnosed with chronic renal failure and control of 30 persons were studied. Mean Metacorpocortical index in study group chronic renal failure patients was 0.42 whereas in controls group was 0.69. Metacorpocortical index was decreased by rise of serum creatinine, urea, phosphorus, serum alkaline phosphatase and serum uric acid. Metacorpocortical index was increased by increase of serum calcium.

CONCLUSION

The study revealed that renal osteodystophy in CRF patients can be measured by simple reliable and accessible method of calculating metacarpocortical index.

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